EOSDIS Core System Project

Flight Operations Segment (FOS) Release B Acceptance Data Package for the ECS Project

September 1997

Hughes Information Technology Systems
Upper Marlboro, Maryland

Flight Operations Segment (FOS) Release B Acceptance Data Package for the ECS Project

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CDRL Item #108

APPROVED BY

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Preface

This document is a formal contract deliverable with an approval code 1. It requires Government review and approval prior to acceptance and use. This document is under ECS contractor configuration control. Once this document is approved, Contractor approved changes are handled in accordance with Class I and Class II change control requirements described in the Earth Observing System (EOS) Configuration Management Plan, and changes to this document shall be made by document change notice (DCN) or by complete revision.

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Abstract

This report is a documented account of the Flight Operations Segment (FOS) Release B Acceptance Data Package during the period July 28, 1997 through September 1, 1997.

This report includes:

    a. Reference to the FOS Release B Physical Configuration Audit and Functional Configuration Audit, which is included in Data Item Description (DID) #506.

    b. Reference to the FOS Release B Acceptance Test Results, which is included in DID #412.

    c. Reference to the FOS Release B Acceptance Test Logs -- i.e., the location where these test logs are physically located.

    d. A summary of the open Action Items from the FOS Release B Functional Configuration Audit (FCA)/Physical Configuration Audit (PCA).

    e. Reference to FOS Non-Conformance Reports (NCRs), which are included in the Distributed Defect Tracking System (DDTS).

    f. Reference to the list of operating manuals that are located at the EOS Operations Center (EOC).

Keywords: Configuration Audits, PCA, FCA, Acceptance Test Logs, action items, and operating manuals.

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1. Introduction

1.1 Identification

This document is the FOS Release B Acceptance Data Package for the ECS Project, which is item 108 on the Contract Data Requirements List (CDRL) and defined by Data Item Description (DID) 535/PA1 under contract NAS5-60000.

1.2 Scope

This document defines the FOS Acceptance Test data package for Release B.

This document reflects the February 7, 1996, Technical Baseline maintained by the Contractor Configuration Board in accordance with ECS Technical Direction No. 11, dated December 6, 1994.

1.3 Purpose

This document describes the information which makes up the FOS Release B Acceptance Test data package. Its purpose is to provide high level information regarding the acceptance testing effort to specifically and comprehensively identify the acceptance test data, and to specify the location of the data produced during acceptance testing.

1.4 Status and Schedule

The submittal of DID 535/PA1 meets the milestone specified in the CDRL of the National Aeronautics and Space Administration (NASA) contract NAS5-60000.

1.5 Organization

Section 1 provides the identification, scope, purpose, status and schedule, and document organization.

Section 2 provides a list of documents, that were used directly or indirectly in the preparation of this document.

Section 3 defines the FOS Release B Acceptance Test data package. It includes identification of the Functional Configuration Audit (FCA) and Physical Configuration Audit (PCA) results, their location, and specific document numbers, as applicable; identification of system Acceptance Test data, their location, and specific document numbers; identification of open action items, reasons they are still open, and authorization to accept these items; identification of operating manuals and verification that they have been provided; and identification of additional deliverable data.

The section Abbreviations and Acronyms contains an alphabetized list of the definitions for abbreviations and acronyms used in this volume.

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2. Related Documentation

2.1 Parent Documents

The parent documents are the documents from which this FOS Release B Acceptance Data Package's scope and content are derived.

420-05-03	Goddard Space Flight Center, EOS Performance Assurance Requirements for the EOSDIS Core System (ECS)
423-41-01	Goddard Space Flight Center, ECS Statement of Work
423-41-03	Goddard Space Flight Center, EOSDIS Core System Contract Data Requirements Document

2.2 Applicable Documents

The following documents are referenced herein and are directly applicable to document. In the event of conflict between any of these documents and this document, this document shall take precedence.

412-CD-003-002	ECS System Acceptance Test Report for Release B, Volume 3: Earth Observing System (EOS) Operations Center (EOC)
506-CD-002-001	Configuration Audits of Flight Operations Segment (FOS) Release B for the ECS Project

2.3 Information Documents

2.3.1 Information Documents Referenced

The following documents are referenced herein and, amplify or clarify the information presented in this document. These documents are not binding on the content of the FOS Release B Acceptance Data Package for the ECS Project.

320-WP-001-002	Flight Operations Segment (FOS) Commercial Off the Shelf (COTS) Hardware and Software for Release A of the ECS Project
609-CD-005-003	Flight Operations Segment (FOS) Operations Tools Manual for the ECS Project
814-RD-007-003	Flight Operations Segment (FOS) Release A Version Description Document (VDD) for the ECS Project

2.3.2 Information Documents Not Referenced

The following documents, although not referenced herein and/or not directly applicable, do amplify or clarify the information presented in this document. These documents are not binding on the content the FOS Release B Acceptance Data Package for the ECS Project

322-CD-010-003   Flight Operations Segment (FOS) Integration and Test (I&T) Procedures for the ECS Project.

324-CD-004-001   Flight Operations Segment (FOS) Release A Integration and Test (I&T) Reports for the ECS Project

3. Acceptance Data

3.1 Audit Records

3.1.1 Physical Configuration Audit

The Flight Operations Segment (FOS) Physical Configuration Audit (PCA) was held at the EOS Operations Center (EOC) on July 11, 1997 and concluded on September 1, 1997. Prior to this audit a 'kickoff' meeting was held at the Hughes Information Technology Systems (HITS) office on June 13, 1997 at which all team members met and stated their audit requirements.

The PCA examined the 'as-built' ECS FOS configuration, as viewed at the EOC, to ensure that it conformed to the Release B design documentation, as described by the FOS product baseline. The FOS product baseline consisted of:

   a. FOS Release B Version Description Document (VDD) -- 814-RD-010-001

   b. FOS COTS Hardware for Release B Technical Paper -- 360-TP-001-001

Attendees of the FOS PCA included the Earth Science Data and Information System (ESDIS) Quality Office, NASA FOS Team, the ECS Configuration Management Office and Quality Office, and the ECS FOS Team.

The results of the FOS PCA are documented in the Configuration Audits for Flight Operations Segment (FOS) Release B for the ECS Project, 506-CD-002-001. In summary, the results of the PCA included the following:

   a. COTS Hardware - The audit found minor errors in documentation and records. 20 NCRs were recorded. All discrepancies have been corrected and the NCRs closed. Audit team members, including government members, certified that the COTS hardware configuration installed at the GSFC EOC conformed to the FOS Release B Product Baseline.

   b. COTS Software - The audit found errors in software configuration. 19 NCRs were recorded. The discrepancies are being corrected and NCRs are being closed. Audit team members, including government members, certified that the "as installed" configuration of COTS and shareware installed at the GSFC EOC will conform to FOS Release B Product Baseline upon the resolution of the 19 NCRs.

   c. Custom Code - The audit found minor errors in setup and configuration. 10 NCRs were recorded. The discrepancies are being corrected and NCRs are being closed. Audit team members, including government members, certified that the "as built" custom software installed at the GSFC EOC will conform to FOS Release B Product Baseline upon the resolution of the 10 NCRs.

3.1.2 Functional Configuration Audit

The Fight Operation Segment (FOS) Functional Configuration Audit (FCA) was initiated at the HITS offices in Upper Marlboro, MD on September 1, 1997. Due to the complexity of the Acceptance Testing it was not possible to complete the FCA on that day. The audit was viewed as a preliminary effort and rescheduled for October 1, 1997.

3.2 System Acceptance Test Data

3.2.1 System Acceptance Test Results

The Flight Operations Segment Release B System Acceptance Test was held between July 28, 1997 and September 1, 1997 at the EOC. This test phase culminated in the FOS Release B Release Readiness Review, which was held at the HITS Upper Marlboro, MD facility on September 2, 1997. The key participants of the FOS Release B System Acceptance Test were the ECS FOS Test Team, ECS Quality Office, and the NASA/FOS Test Team. The ESDIS Independent Verification and Validation (IV&V) team also viewed the acceptance tests. The results of the FOS Release B System Acceptance Test are documented in the ECS System Acceptance Test Report for Release B, Volume 3: Earth Observing System (EOS) Operations Center (EOC), 412-CD-003-002.

3.2.2 System Acceptance Test Logs

The system test logs consist of the following information for each test conducted during FOS Release B Acceptance Testing: test case number and title; test conduct summary; date of test; pass/fail assessment; test procedure deviations; NCRs written; NCRs verified; test iteration identification. These test logs are current as of September 1, 1997.

3.3 Open Action Items

All 20 action items from the FOS PCA COTS Hardware have been closed.

The 19 action items from the FOS PCA COTS Software remain open. The action items are categorized as 1) software to be installed or removed and 2) missing version identification and patches. All of the action items are being resolved and most will be closed with the delivery of the final Release B VDD.

The 10 action items from the FOS PCA Custom Software remain open. The action items are categorized as 1) correction of installation and documentation, 2) unique CM directories and EOC files, and 3) missing / additional EOC files. All of the action items are being resolved and most will be closed with the delivery of the final Release B VDD.

The 6 action items from the FOS Release B Release Readiness Review are in the process of being closed. The action items included the following: 1) document the software configuration executing on the DECs, 2) update DDTS to reflect current Release B software status, 3) verify 'test' NCRs and ensure test logs reflect DDTS, 4) close COTS and Custom Software NCRs with final delivery of the VDD, 5) resolve HP checkout issues, install COTS trouble ticket on the server port, and deliver a VDD 3 weeks prior to the installation of the HP port, and 6) deliver a clean version of the RRR slides.

FOS has identified a set of liens in the FOS Release B system that will be corrected after the FOS Release B Release Readiness Review. The planned correction of the 17 liens found has been coordinated with the ESDIS Integration and Test (I&T) personnel as well as the Flight Operations Team. To ensure that this set of liens is uniquely tracked, they are included in the NCR Distributed Defect Tracking System (DDTS) project "From_A" in the FOS_Rel_B class.

3.4 Operating Manuals

The set of operating manuals for the EOC equipment has been provided to the EOC. The set of vendor manuals presently resides on books shelves in the EOC equipment room, and is listed in the Flight Operations Segment (FOS) Release B Version Description Document (VDD), 814-RD-010-001, section 4.1.1. The Flight Operations Segment (FOS) Operations Tools Manual, 609-CD-005-003, describes how to use the functional capabilities provided for FOS Release B. The FOS Operations Tools Manual is planned to be updated with the Release B delivery of the FOS software.

3.5 Additional Deliverable Data

Not applicable.

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Abbreviations and Acronyms

ANA   Analysis

CCB   Configuration Control Board

CCR   Configuration Change Request

CDRL   Contract Data Requirements List

CM   Configuration Management

CMO   Configuration Management Office

COTS   Commercial Off the Shelf

CSR   Consent to Ship Review

DCN   Document Change Notice

DDTS   Distributed Defect Tracking System

DID   Data item description

DM   Data Management

ECS   EOSDIS Core System

EOC   EOS Operations Center

EOS   Earth Observing System

EOSDIS   EOS Data and Information System

ESDIS   Earth Science Data and Information System (GSFC Code 505)

FCA   Functional Configuration Audit

FOS   Flight Operations Segment (ECS)

FUI   FOS User Interface

GSFC   Goddard Space Flight Center

HITS   Hughes Information Technology Systems

I&T   Integration and Test

IV&V   Independent Verification and Validation

NASA   National Aeronautics and Space Administration

NCR   Non-Conformance Report

PCA	Physical Configuration Audit
QA	Quality Assurance
RBR	Requirement by Release
RCM	Real-Time Contact Management
RRR	Release Readiness Review
RTM	Requirements and Traceability Management
TRR	Test Readiness Review
VDD	Version Description Document